Scientific output does not preclude regular physical activity in young Polish cardiologists

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Introduction "Club 30" is a section of the Polish Cardiac Society and a unique community of talented young cardiologists (for more information, see the Note section at the end of the text).[1] According to the guidelines[2] and training curriculum,[3] cardiologists are responsible for promoting healthy behaviors among patients. The European Society of Cardiology recommends moderate-intensity aerobic physical activity (PA) at least for 2.5 to 5 hours a week or vigorous intensity aerobic PA for a minimum of 1 to 2.5 hours a week to maintain health.[2] It has been reported that professional duties of cardiovascular specialists alone do not provide the recommended PA level[4]; however, in the United States, 89% of cardiologists declare to exercise at least 1 time a week, following healthier lifestyles than the general adult population.[5]

The PA of doctors may influence their counselling practices.[6] Nevertheless, to the best of our knowledge, it is unknown whether there is any association between PA and scientific activity in physicians. This prompted us to investigate this issue among "Club 30" fellows—scientifically productive Polish doctors.

Patients and methods From September 2014 to November 2014 we performed a web-based cross-sectional questionnaire study assessing PA. An e-mail invitation with an activation link was sent 3 times to all active members (n = 94) within 6-week intervals. Respondents answered questions anonymously regarding their everyday and seasonal PA, scientific and professional activity, and basic demographic data.

A statistical analysis was performed with STATISTICA 10.0 (StatSoft, Tulsa, Oklahoma, United States). Data were expressed as median (interquartile range [IQR]) or number (percentage). Spearman rank correlation coefficients were calculated. A 2-sided *P* value of less than 0.05 was considered statistically significant.

Results A total of 61 individuals (44 men, 72%) at a median age of 37.5 (33.5–41.5) years with normal body mass index (BMI; median, 23.71 kg/m^2 [IQR, 22.3–26.59 kg/m^2]) responded to the queationnaire. Among the respondents, there were 14 residents (21%); however, most physicians were board-certified in at least 1 specialty and had relatively long clinical experience. A median time from graduation was 11 years (IQR, 8–17 years); median impact factor (IF) of the journals in which their papers had been published and Hirsch index (HI) were 43 (range, 18.5–100) and 6 (4–10), respectively. Forty-four members (72%) declared regular PA with a median frequency of 3 times per week (range, 3–5) and 14 (23%) reported irregular activity more than 1 time a week. Four respondents (7%) were physically inactive.

Median time spent on PA was 4 hours per week (IQR, 2–7; minimum–maximum, 0–18 hours). The majority preferred individual training (81%). While 11 respondents (18%) were previously professionally involved in sports (including 4 sports instructors [7%]), 27 (44%) reported participation in a competition and 19 winning a prize.

Twenty-seven individuals (44%) reported long-term adherence to the favorite sports discipline, with a practicing time of 20 years (IQR, 10–27.5 years). The remaining subjects practiced different sports and changed them occasionally. Most popular sports were alpine skiing (n = 39, 62%), running (n = 32, 52%), cycling (n = 27, 40%), hiking (n = 24, 39%), fitness (n = 21, 34%), and tennis (n = 15, 25%). Thirty-six respondents (59%) acknowledged days/nights on call as part

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Received: June 15, 2015.
Accepted: July 10, 2015.
Published online: July 15, 2015.
Conflict of interests: none declared.
Pol Arch Med Wewn. 2015; 125 (7-8): 591-592

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of their PA (not taken into account during PA time calculations).

The members who practiced running reported a median annual running distance of 300 km (IQR, 120–600 km; maximum, 10 000 km; 56% of the respondents practiced all year round, irrespectively of the weather). The members who practiced cycling reported a median annual distance of 500 km (IQR, 200–1200 km; maximum: 50 000 km, 29% of the respondents cycled throughout the year, irrespectively of the weather).

A median annual sports-related expenditure equaled 49.3% of the average monthly gross wage in Poland in the first quarter of 2015, based on the data from the Central Statistical Office of Poland (IQR, 24.7%–123.3%; the minimum was 0 and the maximum was 7.4 times the average monthly gross wage in Poland).

Both IF and HI correlated with age (R = 0.54, P <0.0001; R = 0.50, P = 0.0002; respectively) and time from graduation (R = 0.54, P <0.0001; R = 0.53, P = 0.0001; respectively). BMI correlated with IF (R = 0.31, P = 0.02), but not with age or time from graduation. Time spent on PA during the week did not correlate with IF, HI, age, and BMI, neither did the annual running and cycling distance in runners and cyclists, respectively.

Discussion This short report has shown for the first time that regular scientific and clinical activity do not preclude PA in young cardiologists. Despite long working hours and research-related extracurricular activities, the members of "Club 30" proved health-aware and maintained the PA on the level recommended by the guidelines on cardiovascular disease prevention. Our results show that ambitious clinicians and scientists are often also ambitious sportsmen. However, the generalizability of the results is limited owing to a low number of participants and possible response bias.

Although IF and HI were not associated with PA, we found a weak positive correlation between BMI and IF. However, this observation may be irrelevant because the vast majority of doctors had their BMI within the reference range, and it is unlikely that bigger scientists make better scientific contributions. Only 4 respondents admitted to no PA at all, while 57 (93%) exercised at least once a week—a result better than that reported by Abuissa et al.[5] for American cardiologists (89%). Importantly, based on a questionnaire, Abuissa et al.[5] studied a large group of 471 physicians with a response rate of 59%, compared with 65% in our study.

Interestingly, 59% of the investigated physicians acknowledged that work contributes to their PA. Although profession-related PA of cardiovascular specialists is substantial (mean of 6010.6 steps per day during work),[4] that alone is not enough to meet the PA level endorsed by the guidelines.[2,7]

In a study by Rurik et al.,[8] only 22% of male and 12% of female doctors 30 years after graduation reported regular PA, and twice as many doctors as in our study reported no PA at all.[8] Importantly, low PA is a significant predictor of two burnout components, namely, emotional exhaustion and personal accomplishment, already in undergraduate medical students[9]; therefore, it seems of utmost importance that cardiovascular specialists, whose workload is considerable, remain physically active.

Our report has some limitations that need to be addressed. Firstly, the study group comprised the elite group of "Club 30" members only. It caused a natural restriction for recruitment. Secondly, a moderate response rate at a level of 65% influences the external validity of the study. Although this phenomenon is a well-known drawback in all questionnaire investigations, one may speculate that doctors maintaining PA were more prone to participate, with the worst-case scenario that nonresponders were completely physically inactive.

In conclusion, we demonstrated that young physicians with substantial scientific record in the field of cardiovascular research in Poland maintain PA on a sufficient level.

Note "Club 30" is an official section of the Polish Cardiac Society (PCS), established in 1993 as a platform for integration of Polish cardiologists with scientific ambition, sharing research ideas and starting new projects (the prime mover was Professor Leszek Cermurzyński). The "Club 30" applicants have to be PCS members, be less than 35 years old at the time of application, and need to have a substantial scientific record (they are required to be the first authors of papers published in journals listed in the ISI Master Journal List, with a minimal impact factor of 3).

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